

Claims

- [c1] 1 .A night light for use in conjunction with an associated plumbing fixture including a spout and a handle for controlling a water flow from the spout, the night light comprising:
an LED arrangement comprising at least one LED disposed on or in the associated plumbing fixture for directly illuminating at least one of the handle, the water flow, and an associated basin.
- [c2] 2 .The night light as set forth in claim 1 , further including:
a switch operatively communicating with the handle, the switch selectively energizing the LED arrangement responsive to a position of the handle.
- [c3] 3 .The night light as set forth in claim 1 , further including:
a switch that electrically energizes the LED arrangement conditional upon a presence of a pre-selected flow of water from the spout.
- [c4] 4 .The night light as set forth in claim 1 , further including:
a control circuit that communicates with the handle and the LED arrangement to provide variable illumination responsive to a degree of opening of the handle.
- [c5] 5 .The night light as set forth in claim 1 , wherein the LED arrangement includes:
a first color LED that emits light having a first color; and
a second color LED that emits light having a second color.
- [c6] 6 .The night light as set forth in claim 5 , further including:
a temperature sensor for producing an output indicative of a temperature of the water flow, the temperature sensor modulating an intensity of the first color and an intensity of the second color LED responsive to the temperature of the water flow.
- [c7] 7 .The night light as set forth in claim 1 , further including:
a sensor that produces at least one output characteristic of at least one of:
a temperature of the externally accessible fluid flow,
a flow rate of the externally accessible fluid flow,
a position of a handle that controls the externally accessible fluid flow, and

an ambient light intensity; and
a controller that controls the LED arrangement responsive to the at least one output of the sensor unit.

- [c8] 8. The night light as set forth in claim 7, wherein the controller effectuates a warning modulation of the LED arrangement responsive to an output of the sensor unit outside of a selected range.
- [c9] 9. The lavatory as set forth in claim 8, wherein the warning modulation includes a blinking of at least one element of the LED arrangement.
- [c10] 10. The night light as set forth in claim 7, further including:
a hermetic sealant that seals the LED arrangement against contact with water.
- [c11] 11. The night light as set forth in claim 7, further including:
a substrate on which the LED arrangement is disposed; and
an encapsulant that encapsulates the LED arrangement and at least a portion of the substrate.
- [c12] 12. The night light as set forth in claim 11, wherein the substrate includes a circuit board having electrical traces for electrically communicating with the LED arrangement.
- [c13] 13. The night light as set forth in claim 12, further including:
an ambient light sensor arranged on the circuit board and encapsulated by the encapsulant, the ambient light sensor electrically communicating with the LED arrangement to operate the LED based upon an ambient light sensor output.
- [c14] 14. The night light as set forth in claim 7, wherein the plumbing fixture includes one of a faucet and a showerhead.
- [c15] 15. The night light as set forth in claim 7, wherein the LED arrangement includes:
an LED disposed on the handle.
- [c16] 16. The night light as set forth in claim 7, wherein the LED arrangement includes:

an LED disposed near the handle.

[c17] 17. The night light as set forth in claim 1, wherein the LED arrangement includes:

an LED disposed in the handle, said handle being light transmissive.

[c18] 18. The night light as set forth in claim 1, wherein the LED arrangement includes:

an LED embedded in a light-transmissive portion of the plumbing fixture.

[c19] 19. The night light as set forth in claim 1, wherein the LED arrangement includes:

an LED arranged on the spout to illuminate the water flow.

[c20] 20. The night light as set forth in claim 19, wherein the LED arrangement includes:

a detachable lower plate of the spout on which the at least one LED is arranged.

[c21] 21. A plumbing fixture comprising:

a showerhead or a faucet, the showerhead or faucet including a water outlet for emitting a water flow and a handle for controlling the water flow;

at least one LED arranged on or in the showerhead or faucet and viewable by an associated user of the plumbing fixture;

a light-transmissive encapsulant that seals the at least one LED and transmits light produced by the at least one LED to the associated user; and

a controller producing a controller output for controlling the LED light emission responsive to at least one of a water flow rate, a water flow temperature, an ambient light level, and a position of the handle.

[c22] 22. The plumbing fixture as set forth in claim 21, further including:

one of a battery pack and a class II transformer arranged to power the at least one LED and the controller.

[c23]

23. The plumbing fixture as set forth in claim 21, further including

a printed circuit board on which the at least one LED is disposed, the printed circuit board including conductive traces operatively interconnecting the LED

with the controller.

- [c24] 24 .The plumbing fixture as set forth in claim 23 , further including:
electrical power conditioning circuitry arranged on the printed circuit board for
conditioning electrical power supplied to the at least one LED.
- [c25] 25 .The plumbing fixture as set forth in claim 27 , wherein the controller
includes one of:
a switch operatively connected with the handle and producing an output
responsive to a position of the handle,
a flow sensor communicating with the water flow,
a temperature sensor thermally communicating with the water flow, or
a light sensor optically communicating with the ambient.
- [c26] 26 .The plumbing fixture as set forth in claim 23 , wherein the at least one LED
further includes:
a plurality of LEDs cooperating with the controller to emit light including at least
one of two or more colors of light responsive to the controller output.
- [c27] 27 .A lamp adapted for arrangement on a faucet or showerhead including a
spout and at least one handle for controlling a water flow out of the spout, the
lamp comprising:
a printed circuit board with conductive traces arranged thereon;
an LED source including at least one LED arranged on the printed circuit board
and electrically powered via the conductive traces; and
a light-transmissive encapsulant sealing the LED source and the conductive
traces.
- [c28] 28 .The lamp as set forth in claim 27 , wherein the encapsulant defines a
selected shape adapted for arrangement on the faucet.
- [c29] 29 .The lamp as set forth in claim 27 , wherein the encapsulant defines an
annular or slotted form adapted for arrangement on a shaft on which the handle
is disposed.
- [c30] 30 .The lamp as set forth in claim 27 , further including:

a light sensor arranged on the printed circuit board and encapsulated by the light-transmissive encapsulant, the photosensor optically communicating with the ambient and electrically communicating with the LED source to activate the LED source conditional upon a low ambient lighting criterion.

- [c31] 31. The lamp as set forth in claim 27, further including:
a battery pack adapted to transmit power supplied by an associated battery to power the LED source.
- [c32] 32. The lamp as set forth in claim 27, further including:
an inductively rechargeable battery electrically arranged to power the LED source.
- [c33] 33. The lamp as set forth in claim 27, further including:
electrical leads adapted to receive power from a class II power supply for powering the LED source.
- [c34] 34. The lamp as set forth in claim 27, further including:
a fastener attached to at least one of the printed circuit board and the light-transmissive encapsulant, the fastener adapted to detachably connect with the faucet or showerhead.
- [c35] 35. The lamp as set forth in claim 34, wherein the fastener includes a clamp adapted to detachably clamp onto a pipe on which the showerhead is disposed.